USER'S MANUAL

Label Printer

BTP-L580

Shandong New Beiyang Information Technology Co., Ltd.
ORIENT Technologies b.v.

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Warnings and Cautions

⚠ Warning: Items shall be strictly followed to avoid damages to body and equipment.

⚠ Caution: Items with important information and prompts for operating the printer.

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1) The quality control system of SNBC has been approved of the following certification.

(DNV)ISO9001:2000

2) The environmental control system of SNBC has been approved of the following certification.

(DNV)ISO14001:2004

3) BTP-L580 has been approved of the following certification.

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General Safety Instruction

Before installing and using the printer, please read the following items carefully:

1. Safety Instructions

Caution: Do not touch the cutter of the printer.

Heating: The print head is at a high temperature during printing or just after operation. Do not touch it and its peripherals for reasons of safety.

Warning: The print head is an ESD-sensitive device. To avoid damage, do not touch either its printing parts or connecting parts.

2. Caution

1) Install the printer on a flat and stable surface.
2) Reserve adequate space around the printer so that convenient operation and maintenance can be performed.
3) Keep the printer away from water source, direct sunlight, strong light and heat.
4) Do not use or store the printer in a place exposed to heat or fire, moisture or other pollution.
5) Do not place the printer in a place exposed to vibration or impact.
6) No dew condensation is allowed to the printer. In case of such condensation, do not turn on the power until it has completely gone away.
7) Connect the power cord to an appropriate grounding outlet. Avoid sharing a single electrical outlet with large power motors

and other devices that may cause the fluctuation in voltage.

8) Disconnect the power cord if the printer is idle for a long time.
9) Do not spill water or other electric substances (like metal) on the printer. If this happens, turn off the power immediately.
10) Do not allow the printer to start printing when there is no recording paper installed, otherwise the print head and platen roller will be damaged.
11) To ensure quality print and normal lifetime, use recommended or good quality paper.
12) Shut down the printer when connecting or disconnecting interface connectors to avoid damage to the control board.
13) Set the print darkness to a lower grade as long as the print quality is acceptable. This will help to keep the Printhead durable.
14) The printer should only be disassembled or repaired by a technician, who is certified by ORIENT Technologies.
15) Keep this manual safe and at hand for reference purpose.

1 Introduction

1.1 Outline

BTP-L580 thermal label printer has high performance. It can be used for real-time label printing like for retail, storage, logistics, pharmacy, etc.

This product can be connected to other equipment via Serial, Parallel, USB, Ethernet or WLAN interfaces. The printer is supplied with a user-friendly label creation software for use under WINDOWS2000/XP/Server 2003/VISTA.

1.2 Main Features

◇ Low noise
◇ 150mm/s high-speed printing
◇ Easy paper loading
◇ Easy operation and maintenance
◇ Three different paper width
◇ Auto paper cutting
◇ Cash drawer control connector
◇ Choice from several interfaces ("daughter boards")

2 Main Specification

2.1 Technical Specification

Item	Parameter
Print Method	Direct Thermal
Resolution	203DPI
Print Speed	150mm/s (Max.)
Print Width	80mm (Max.)
Memory	RAM: 2MB FLASH: 2MB
Interface	Optional Parallel(IEEE1248), Serial (RS232C/RS485), USB, Ethernet, WLAN
Cash drawer	1~2 drives
Barcode Supported	1D:UPC-A, UPC-E, EAN8, EAN13, CODABAR, CODE39, ITF, CODE128,CODE93, 2D:PDF417,QR,MaxiCode
Fonts	ASCII Font A: 12×24; Font B:9×17; Simplified Chinese（GB2312 or GB18030）, Korean, Japanese, Traditional Chinese selected
Character Enlarge	1-6 times
Character Rotation	Rotate (0°, 90°, 180°, 270°)
Image process	Bitmap download: download 8 bitmaps at most; buffer size is 12 KB
	Direct bitmap print: support bitmap mode and can execute quick bitmap print
Paper type	Label paper，continuous paper
Label sensor	Optical sensor
Paper near end sensor	Optical sensor
Top cover position sensor	Microswitch
Print head temperature sensor	Thermistor
Power supply	AC 220V±10%, 50~60HZ
Printer head lifetime	100KM
Operation condition	5℃~45℃, 20%~90% RH (40℃)
Storage condition	-40℃~55℃, 20%~93%RH (40℃)
Dimensions	147 (W) × 205 (D) × 147 (H) mm

2.2 Cutter Specification

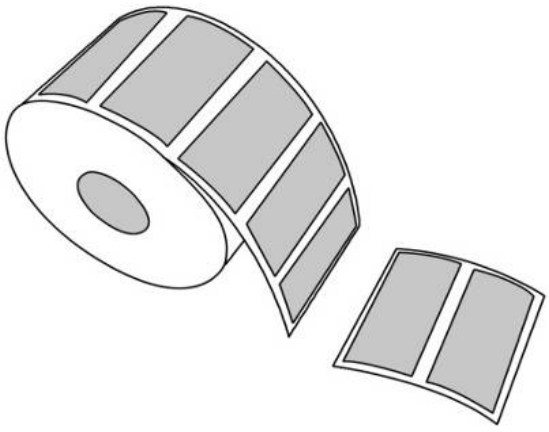
Item	parameter	Note
Cutter type	Slide cutter	
Cutting time	600ms	The time that one cut takes
Cutting interval	2s	30 times/min. (Max.)
Paper type	0.05-0.07mm	Liner paper
Operation voltage	24VDC	
Max. static curren	1.2A	24VDC
Cutter lifetime	Only liner paper: 1,500,000 cuts. The cutter should cut only the liner and not cut the liner together with the label paper, otherwise it will negatively affect the lifetime of the cutter	Full or partial cuts

- Full cut: cut off the label completely；
- Partial cut: little connection left in middle. When in partial cut mode, it is not allowed to retract paper, otherwise the not completely cut paper may cause paper jam.

2.3 Paper Specification

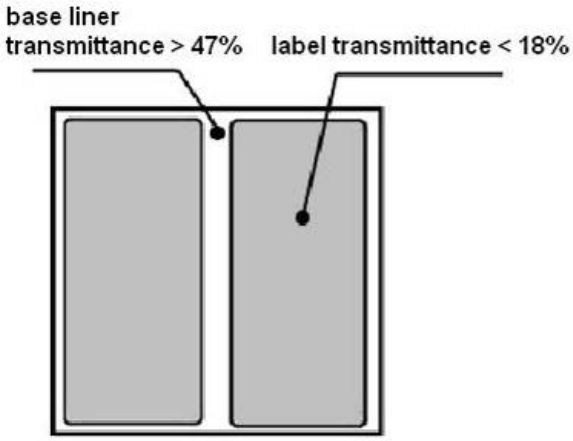
2.3.1 Thermal Label Paper Parameter

- Appearance:

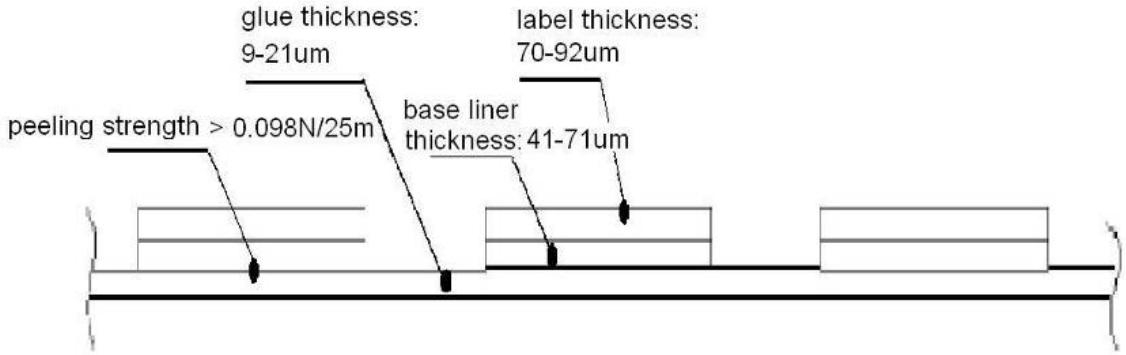


- Paper transmittance

  Label: transmittance <18%; Base Liner: transmittance >47%



- Paper supply method: paper roll
- Paper width: 82.5±0.5mm, 80±0.5mm, 57.5±0.5mm
- Label Length：30mm~120mm
- Paper thickness and stickiness requirements



- Thermal senstive layer: outside
- Paper roll specifications

  OD (Max): Φ100 mm

  ID (Min): Φ25mm

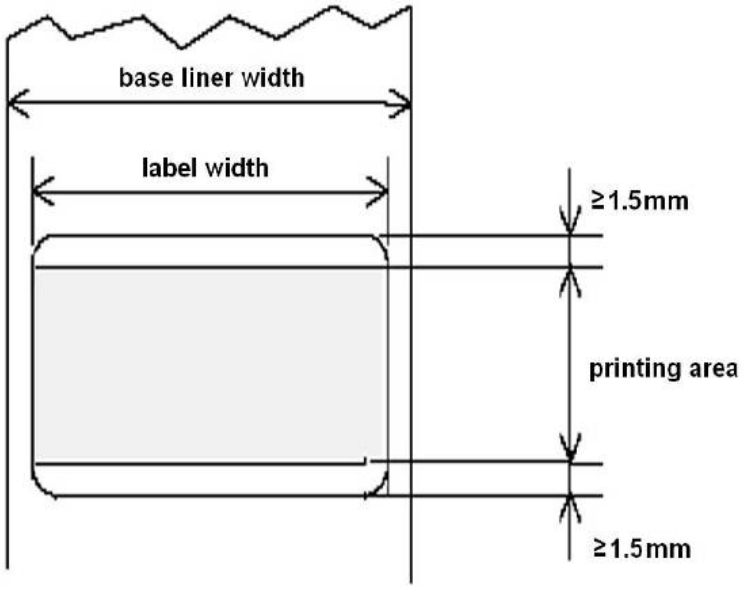
Caution:

- ✧ Please use qualified paper, otherwise may affect printing quality and TPH lifetime.
- ✧ The paper should not be pasted to the core.

- ✧ If the paper is contaminated by a chemical or oil, it may discolor or lose heat sensitivity at the polluted spot.
- ✧ Do not rub the paper surface strongly against hard objects, otherwise printout may unclear.
- ✧ When the temperature goes up to 70 degrees centigrade, paper will discolor.
- ✧ Don't use or store paper under high temperature, high humidity and strong light conditions.

2.4 Print and tear off position

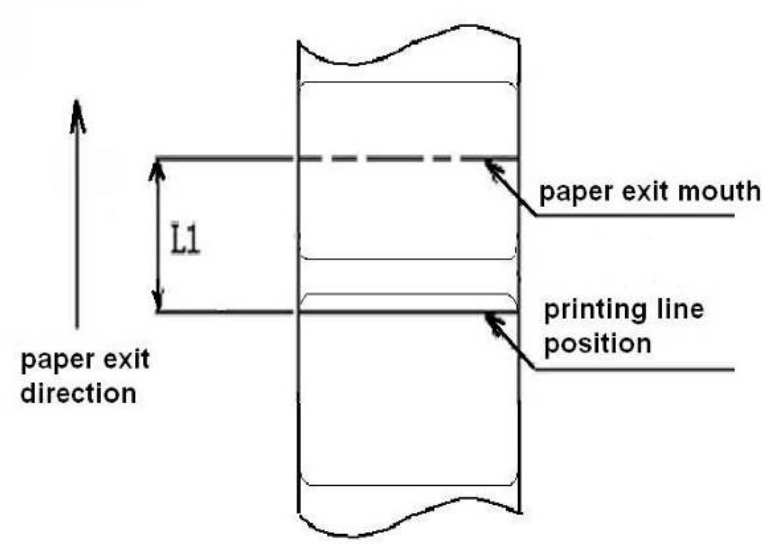
2.4.1 Print position



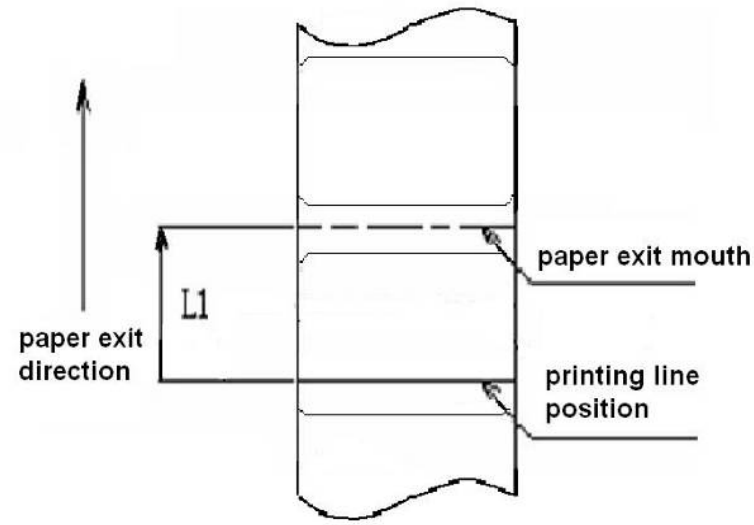
2.4.2 Tear off position

In normal printing mode, tear off position should be:

L_1: about 30mm



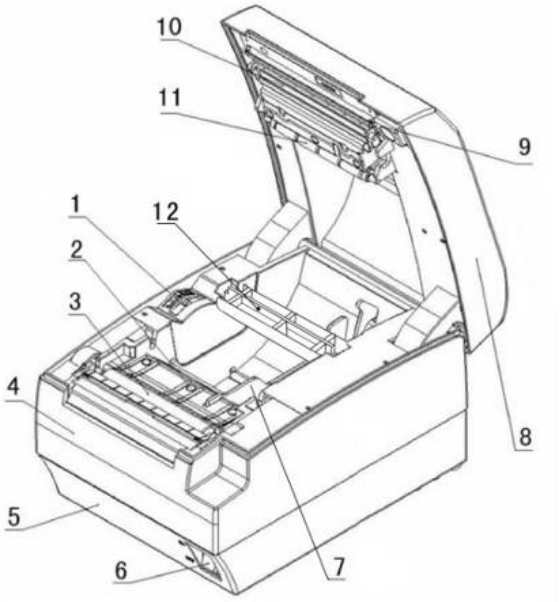
In paper exit mode, tear off position should be:

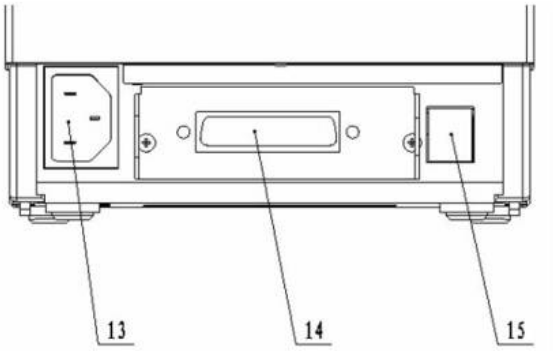


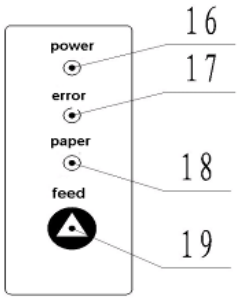
3 Outline and Parts

3.1 Outline and Parts

1 – Paper-near-end sensor lever
(only for receipt printing)
2 - Paper sensor
3 - Platen roller
4 - Middle cover
5 - Bottom cover
6 - Power switch
7 - Paper guide
8 - Top cover
9 - Cover spanner
10 - Print head
11 - Paper roller
12 - Spindle for label roll
13 – AC inlet
14 – Communicate interface
15 – Cash drawer kick-out
16 – Power LED
17 – Error LED
18 – Paper exit LED
19 – FEED button







Functions of parts:

a) Spindle for label roll

It is highly recommended to use the spindle for the label roll in order to reduce resistance and to ensure printing quality.

b) Paper guide

Removing the paper guide or putting it in a different slot will allow the printer to use following paper width: 82.5 ± 0.5mm, 80.5 ± 0.5 mm, 57.5 ± 0.5 mm.

c) Power switch

To turn the power of the printer on or off: "O" power is turned off. "—" power is turned on.

d) Feed button

- By switching on the printer while pressing the FEED button, the printer will print a MAIN MENU. By press different times of the button, user can select to print self-test page or do paper checkout as shown in figure below:

MAIN MENU BTP-L580

Select a submenu：

Exit -〉 1

Print Self Test -〉 2

Calibration -〉 3

Select Print Mode -〉 4

Enter code, then hold Button Down at least 1 second to validate

Printer will quit standby status after pressing the FEED button for a short time and a long time.

Printer will print self-test paper after pressing the FEED button for two short times and a long time.

Printer will carry out paper checkout after pressing the FEED button for three short times and a long time.

Printer will enter into Select Print Mode after pressing FEED button for four short times and a long time. If selected BTP-R580, then printer enters into a continuous paper mode, if selected BTP-L580, then printer enters into a label paper mode.

- In normal status, every time the FEED button got pressed, the printer will feed a label.
- In error status, the printer will have no activity when the FEED button is pressed.

e) Power indicator

This indicates power status (ON/OFF).

f) Error indicator

This indicates some error status. In normal status, ERROR LED is always off. In some error status (Cover Open, Cutter Error, Print head overheated, Input voltage is abnormal), ERROR LED will flash.

g) Paper end LED

This indicates paper status. In normal status the PAPER LED is always off. When the paper status changes (paper end or paper near end) the PAPER LED flashes.

Notices:

- ✧ The paper guide is an indispensable part of the printer and should be kept with the printer.
- ✧ The function of the paper-near-end sensor is not used when printing labels. For printing receipts the paper-near-end sensor will be operational.

3.2 Error LED and Buzzers

1) Error LED

Led	Status	Description
Power Indicator (Green) (POWER)	On	Printer is powered on
	Off	Printer is powered off
Error Indicator (Red) (ERROR)	Off	Printer is in normal status （except paper end or paper near end）
	Flash	Printer is in error status
Paper Indicator (Red) (PAPER)	On	Printer Paper is normal
	Flash	Macro definition is running
	Off	Printer is in normal status

2) Description of LED and Error Status

Error information	ERROR LED	PAPER LED	Buzzer
Print head is overheating	Six times	Off	Long-Short-Long
Input voltage is abnormal	Five times	Off	Short-Short-Long
Cutter Error	Four times	Off	Long-Short-Long
Cover Is Open	Three times	Off	Short-Long-Short
Paper End	Twice	On	Short-Short-Short
Finding label error or verify failed	Flashing continuously	Off	

Caution:

✧ The temperature of the print-head is detected by means of a thermistor sensor. If the temperature of the print head becomes higher than 65°C, the protection circuit of the printer will force the printer to stop printing.

4 Installation

4.1 Unpacking

Check whether all items, that are listed on the packing list are present and in a good condition. If any items are damaged or missing, please contact your dealer.

4.2 Printer installation

1) The printer should be installed on a flat and stable horizontal surface.
2) The printers should be away from any water source.
3) Do not place the printer on a surface exposed to vibration or risk from impact.
4) Ensure that the printers can be grounded safely.
5) During operation and maintenance of the printer there should be sufficient space around the printer in accordance with the dimensions as shown in Fig. 4.2-1.

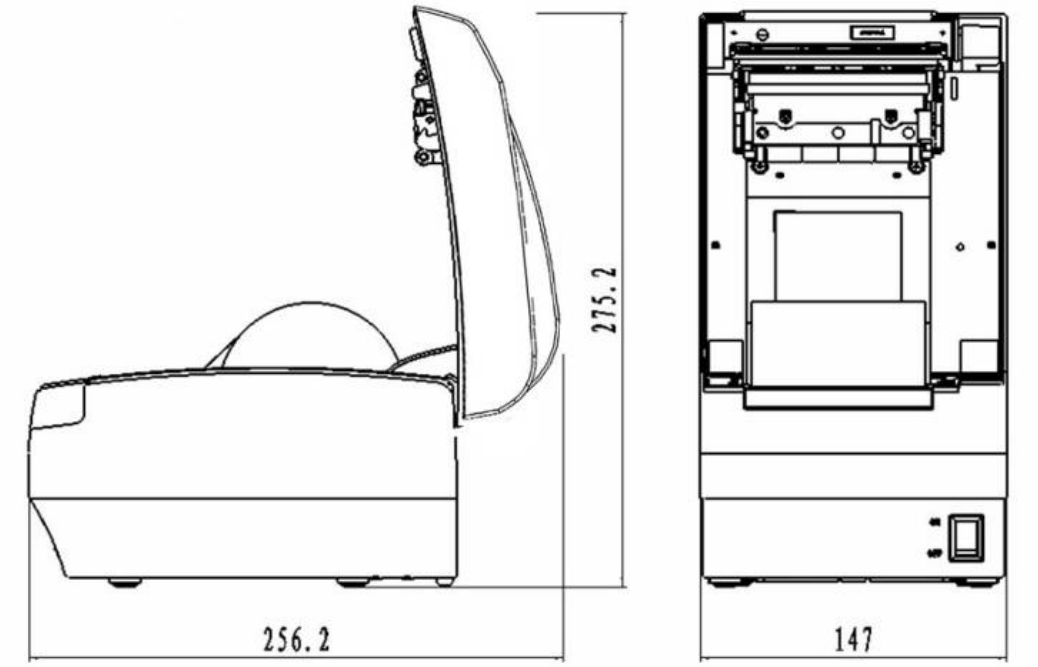


Fig. 4.2-1

4.3 Connecting the Power Adapter

1) Ensure that the printer power is turned off.

2）Insert the power cord into the power socket on the backside of the printer.

3）Secure the power cable cord to the printer with a clip as shown in Fig. 4.3-1.

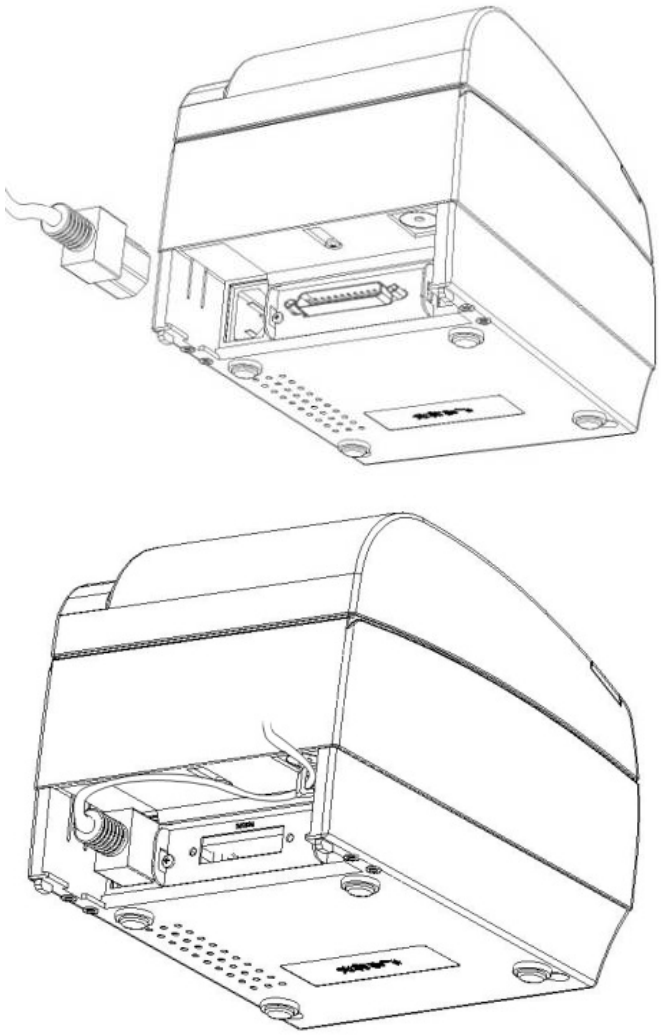


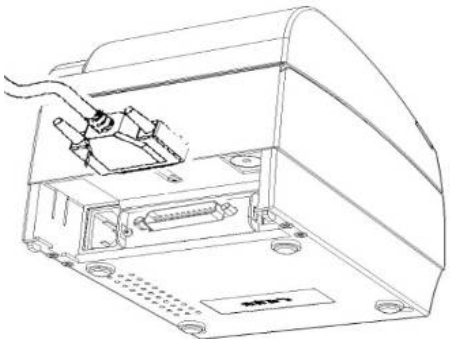
Fig. 4.3-1

Caution:

✧ If the printer is not in use for a long period, disconnect the power cord from the wall outlet for safety.

4.4 Connecting interface cable

1) Ensure the printer power is turned off.
2) Connect the suitable interface cable with the correct connector to the connector of the interface board of the printer by means of the screws (Serial interface) or the clip springs (Parallel interface).

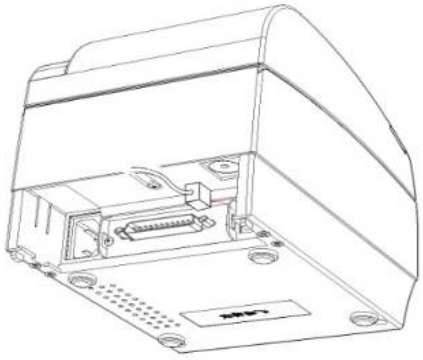


3) Connect the other end of the interface cable to the host.

4.5 Connecting the Cash Drawer

1）Ensure that the printer power is turned off.

2） Insert the cash drawer cable into the cash drawer connector on the back of the printer.



Caution:

✧ The cash drawer interface can be connected only with a cash drawer device (Do not connect a telephone line or similar device).

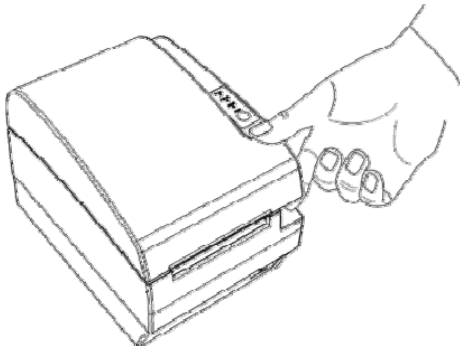
4.6 Paper roll loading

4.6.1 Confirm the paper type

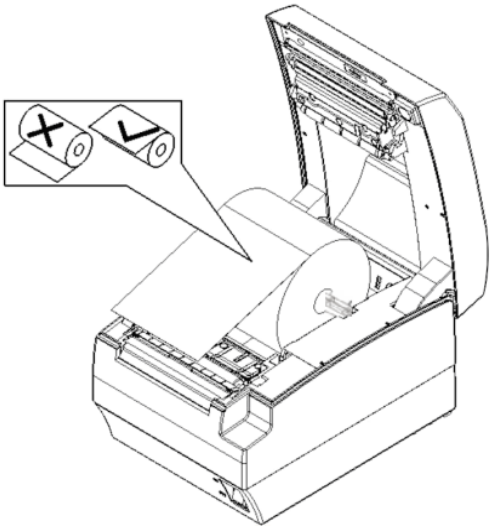
After connecting the printer to the power supply and interfaces, the user can load the label roll in the printer. Check whether the label roll is in accordance with the specification (see 2.3)

4.6.2 Load/replace a paper roll

1) Press the spanner of the top cover and open it.



2) Put the spindle through the hole of the core of the label roll and mount the roll in the printer.

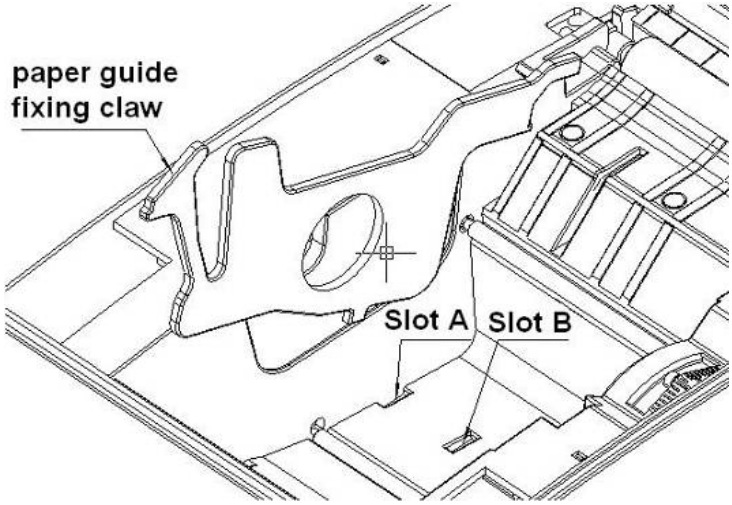


3) Close the printer top cover.

Caution:

✧ If needed remove the paper guide. Choose the suitable paper guide position according to the width of the label roll and mount the paper guide. When inserting the label pay attention to the

paper path direction.



Note: without paper guide: **82.5 ± 0.5mm**

Paper guide in the slot A: **80 ± 0.5mm**

Paper guide in the slot B: **57.5 ± 0.5mm**

✧ Ensure that the labels are rolled tightly onto the label roll, otherwise a paper jam or other fault could happen.

✧ The label roll should be placed straight in the paper holder and not at an angle. The label roll should be able to move freely.

4.7 Switching on and printing a self-test page

4.7.1 Switching on the printer

1) Make sure the printer is connected to the mains voltage.
2) Turn on the power, the printer is on.

4.7.2 Printing a self-test page

1) Make sure that the printer is connected to the mains voltage and that it contains a label roll.
2) Make sure that the printer is switched off (the power LED is off).
3) When turning on the power of the printer while pressing the FEED button, the self test will begin. The printer will print a MAIN MENU as shown below:

MAIN MENU BTP-L580

Select a submenu：

Exit -〉1

Print Self Test -〉2

Calibration -〉3

Select Print Mode -〉4

Enter code, then hold Button Down

at least 1 second to validate

Press FEED button for two short times and one long time to enter into the Print Self Test. The printer will start printing the Self Test page with the following text followed "Press and Release FEED key to print characters" and "Press and Hold FEED key to configure the printer".The printer then enters into pause status and the PAPER LED flashing.

4) After pressing the FEED button for a short time, the printer will print out a character test page and the self-test ends.

After pressing the FEED button for a long time, the printer will enter into the FEED button Configuration mode. For detailed information of the FEED button Configuration please refers to the Appendix.

5 Printer routine maintenance

Caution:

- ✧ Before starting routine maintenance, ensure that the printer is switched off.
- ✧ Do not use solvents like gasoline or acetone.
- ✧ When cleaning sensors, the printer should not be switched on until the pure ethanol has totally evaporated.
- ✧ It is recommended to perform maintenance once a month.

5.1 Cleaning the platen

The steps for cleaning the platen are as given below:

1) Switch off the printer.
2) Open the top cover of the printer.
3) When the top cover is opened, wipe off stains such as dust on the platen by using a soft cotton cloth with a neutral cleaning agent like ethanol.
4) Close the top cover after the ethanol has evaporated completely.

5.2 Cleaning the label sensors

The label sensors need to be cleaned periodically and if the printer has trouble identifying the labels.

The steps for cleaning the sensors are as below:

1) Switch off the printer.
2) Open the top cover of the printer.
3) Wipe off stain or dust from the surface of sensors by using a soft cotton swipe impregnated with pure ethanol.
4) Close the top cover of the printer after the ethanol has evaporated completely.

5.3 Clearing of a paper jam

Remove the paper, if one of the following phenomena occurs:

- The printer fails to feed out paper normally.
- Paper is feeding with load noise.

The steps for removing paper are as below:

1) Switch off the printer.
2) Open the top cover of the printer.
3) Check if there is any label stuck in the paper path or on the roller. Clear the paper jam by removing the jammed paper, remove any paper dust that exists and clean the roller with ethanol.
4) Close the printer top cover.

6 Interface signal

6.1 Parallel interface

Parallel interface can work in IEEE 1284 compatible mode or half-byte mode, which is a 36 pin socket.

The Interface is defined as below:

Pin#	Signal source	Signal definition
1	H	NStrobe
2	H	Data 0 (Least Significant Bit)
3	H	Data 1
4	H	Data 2
5	H	Data 3
6	H	Data 4
7	H	Data 5
8	H	Data 6
9	H	Data 7 (Most Significant Bit)
10	P	nAck
11	P	Busy
12	P	Perror
13	P	Select
14	H	nAutoFd
15		Not defined
16		Logic Gnd
17		Chassis Gnd
18	P	Peripheral Logic High
19		Signal Ground (nStrobe)
20		Signal Ground (Data 1)
21		Signal Ground (Data 2)
22		Signal Ground (Data 3)
23		Signal Ground (Data 4)
24		Signal Ground (Data 5)
25		Signal Ground (Data 6)
26		Signal Ground (Data 7)

27		Signal Ground (Data 8)
28		Signal Ground (PError, Select, and nAck)
29		Signal Ground (Busy and nFault)
30		Signal Ground (nAutoFd, nSelctIn, and nInit)
31	H	nInit
32	P	nFault
33		Not defined
34		Not defined
35		Not defined
36	H	nSelectIn

6.2 Serial interface

The serial interface of the printer is compatible with RS-232 and is equipped with a 25-pin female D type connector for connection with the printer.

PIN No.	Signal definition
PIN1	Frame Ground
PIN2	TXD
PIN 3	RXD
PIN 4	DTR
PIN 5	Not connected
PIN6	DSR
PIN 7	Signal Ground
PIN 8~19	Not connected
PIN 20	DTR
PIN 21~25	Not connected

The user may check the current setting status of the interface by printing a configuration table. The default setting is as follows: Baud rate: 19200bps, 8 data bit, none Parity, 1 stop bit; Handshake: DTR/DSR

6.3 USB interface

- Parameters

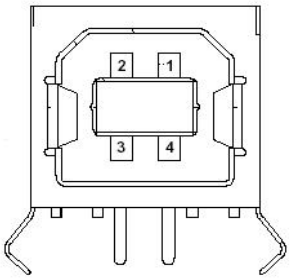
  Data transmission: Support USB1.1 protocol

  Connector (Printer side): USB B type socket. Support and pass USB HUB

- Interface signal definition and functions

Pin No.	Signal	Description
1	VBUS	+5V
2	DATA-	Printer data transmit line minus
3	DATA+	Printer data transmit line plus
4	GND	Ground

- Interface connector



6.4 Ethernet interface

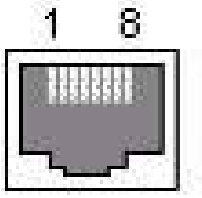
- Feature
  - Supports 10BASE-T communication
  - Compatible with Ethernet II standard frame type
  - LED indicates network connecting status and data transmission status.
  - Supports 9100 port print
  - Supports ASB(Auto status back)
  - Supports parameter configuration
  - Supports firmware program updated online

- Supports printer status query and interface module maintenance based on HTTP.

➢ Interface signal definition

The parameters of Ethernet interface socket match 10BASE-T standard of IEEE802.3. The interface signal is defined as below:

Pin	Signal name	Description
1	TX+	Data sending+
2	TX-	Data sending-
3	RX+	Data reception+
4	NC	Reserve
5	NC	Reserve
6	RX-	Data reception-
7	NC	Reserve
8	NC	Reserve



6.5 WLAN interface

➢ Features

- Supports 802.11b, 802.11g communication
- Supports 9100 port print and LPR print
- Supports ASB (Auto Status Back)
- Supports parameter configuration
- Supports firmware program upgraded online
- Supports HTTP function

➢ Protocols are supported as below

- IP
- ARP
- ICMP
- TCP

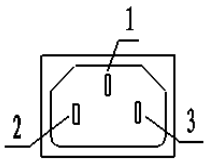
- UDP
- DHCP
- TFTP
- HTTP

WLAN interface uses wireless USB network card of which the main specification should be requested from the local distributor or manufacture.

6.6 Signal definition of power connector

Internal signal definition of power

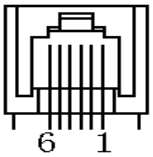
Pin	Signal name
1	E
2	L
3	N



6.7 Signal definition of cash drawer interface

1) Electric characteristics
   - Driving voltage: DC 24 V
   - Driving current: Max. current is 1 A
   - The signal for checking cash drawer status:
     "L" = 0～0.5 V "H" = 3.3 V

2) Cash drawer interface socket uses RJ-11 6P connector.



3) Interface signal definition

No.	Signal	Functions
1	FG	Frame
2	DRAWER 1	Driving signal of cash drawer1
3	DRSW	Check signal for cash drawer status
4	VDR	Cash drawer driving power

5	—	NC
6	GND	Common port with circuit

Caution:

- ✧ Do not allow disconnection or connection of the interface cable plug when the printer and the host are switched on.
- ✧ Avoid the presence of devices like motors with large power as these may cause voltage fluctuations.
- ✧ Always use shielded interface cables.

7 Troubleshooting

Refer to this section if the printer has any problems.

If the problem cannot be solved, please consult with ORIENT Technologies or your supplier.

7.1 Printer doesn't work

Faults	Possible reasons	Solution
Power LED is off and the printer doesn't work	Printer is off	Connect the printer power
	Printer is off	Turn on the printer
	Circuit board is damaged	Contact ORIENT or your supplier

7.2 Alarm LED and buzzer sound

Faults	Possible reasons	Solution
Paper LED on and buzzer sounds	Paper end	Replace with new paper roll
Alarm LED flashes and buzzer sounds	Input voltage is abnormal	Turn off the printer power and check The input voltage
	Print head is overheated	Turn off the printer power and wait for the print head temperature recovered normally
	Cutter Error	Cutter resetting(reference 7.4)
	Printer can't identify label	Carry out paper checkout after solving problems of buttons，and then calibrate the paper again
	Serious fault occurs	Contact your dealer

7.3 Problems with printing

Faults	Possible reasons	Solution
Printout is light	Print head is damaged	Replace print head
Printout is not clear or has dirt	Print head or platen is dirty	Clean print head or platen

Paper cannot be fed out properly	Paper jam	Open top cover and check paper path to remove paper jam

7.4 Cutter resetting

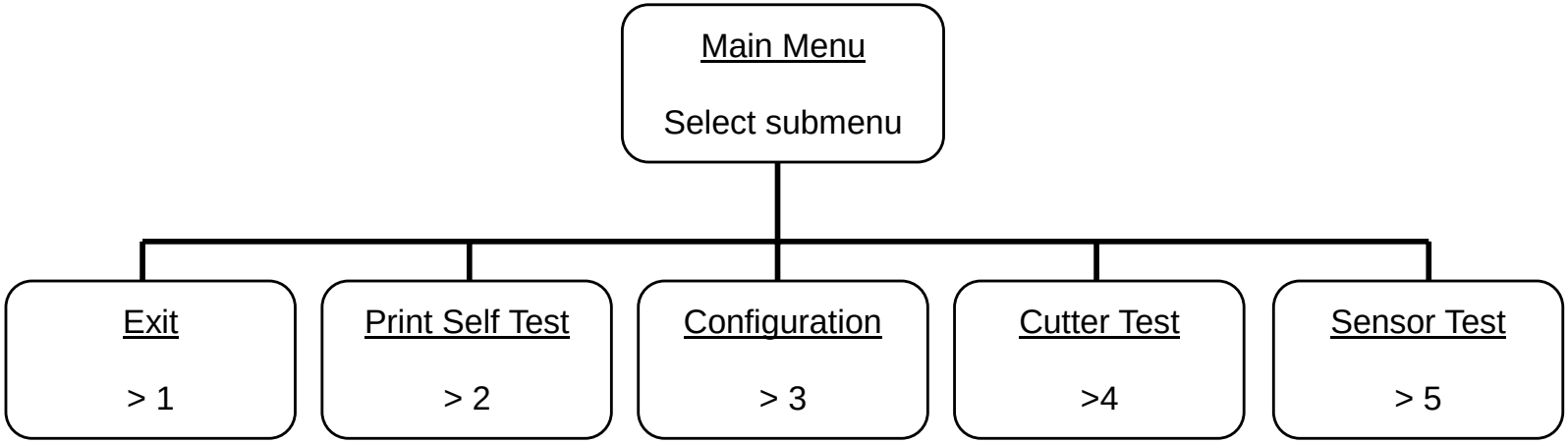
If the moving blade of the cutter does not return to its home-position, then the top cover should be opened and the printer should be switched on. This will force the moving blade to reset and return to its home-position. Please contact ORIENT Technologies or your supplier if the problem persists.

APPENDIX: FEED button Configuration

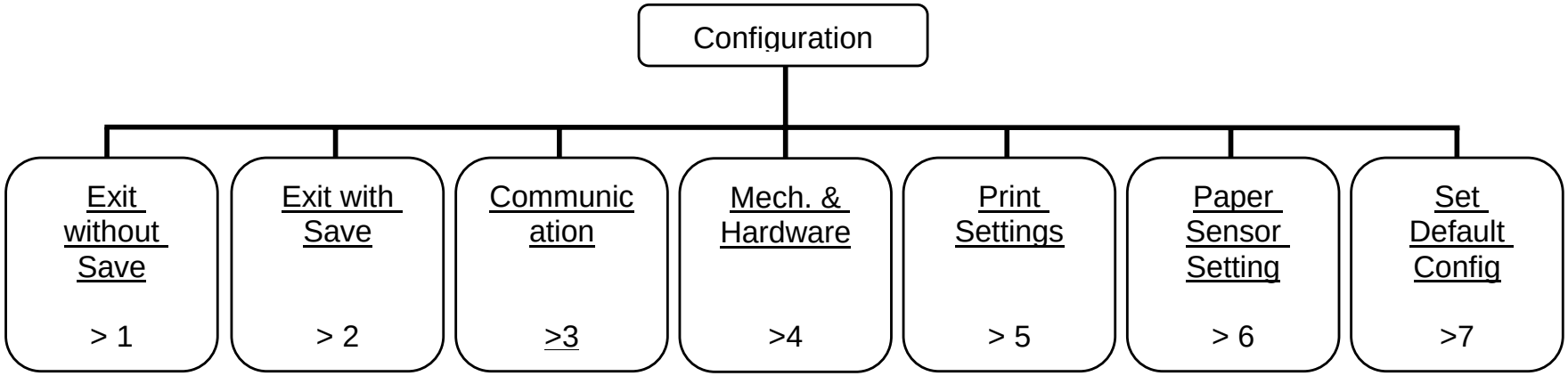
Parameter setting (configuring) by Feed button

1) Hold the FEED button pressed while switching the printer on.
2) After the printer has printed the configuration sheet, press and hold the FEED button to configure the printer. The main menu for the key-stroke setting procedure is printed.
3) The procedure consists of several sub-menus and step-by-step working is needed.
4) With every choice is a number. This number indicates the number of times the FEED button has to be shortly pressed. After this, the choice is validated by an additional, but longer press of the FEED button (1 sec).
5) After all settings have been done, they are stored in the printer by stepping back through the submenus to the main menu by using the number "1" plus additional press for validation.

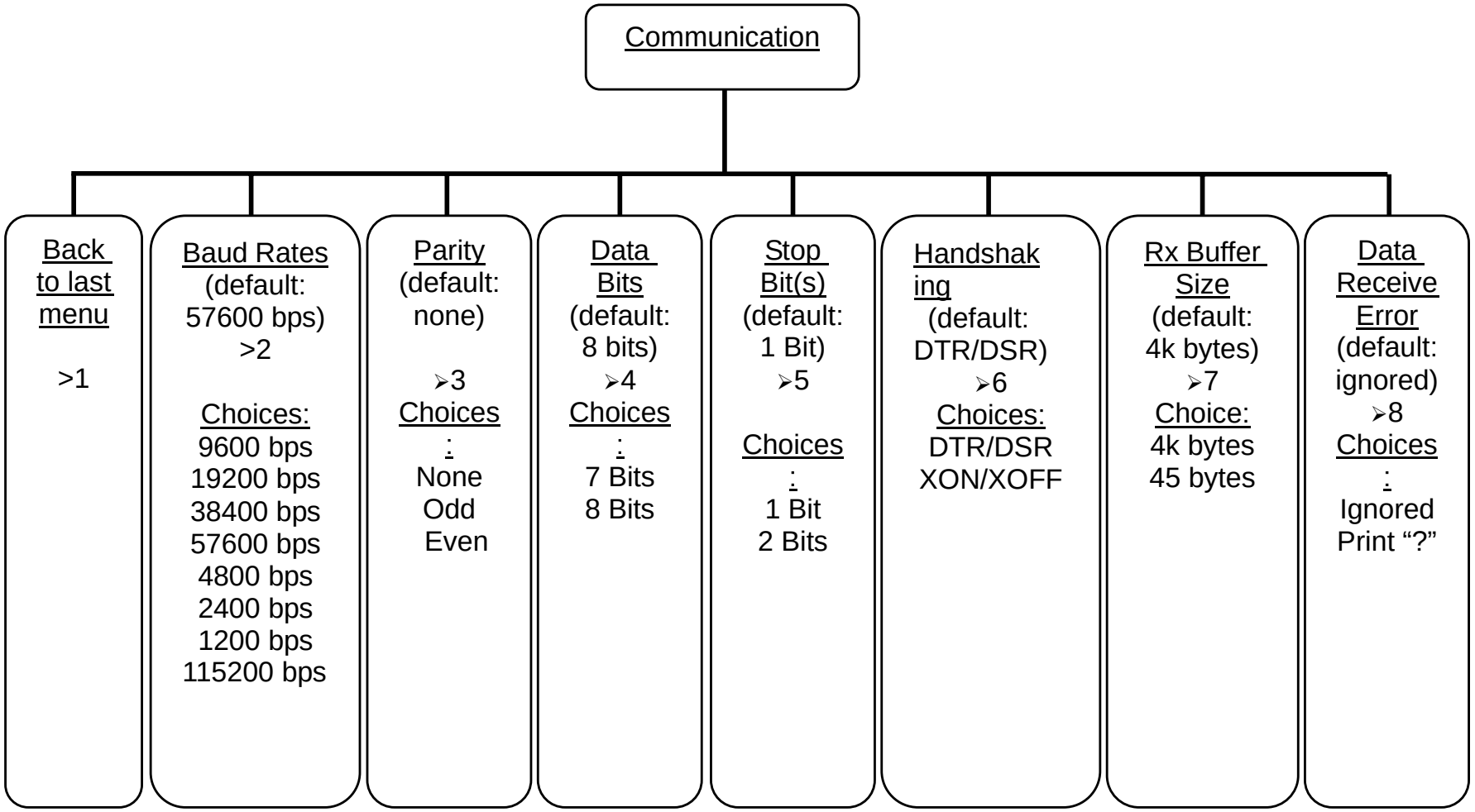
- **Parameter setting by Feed button**



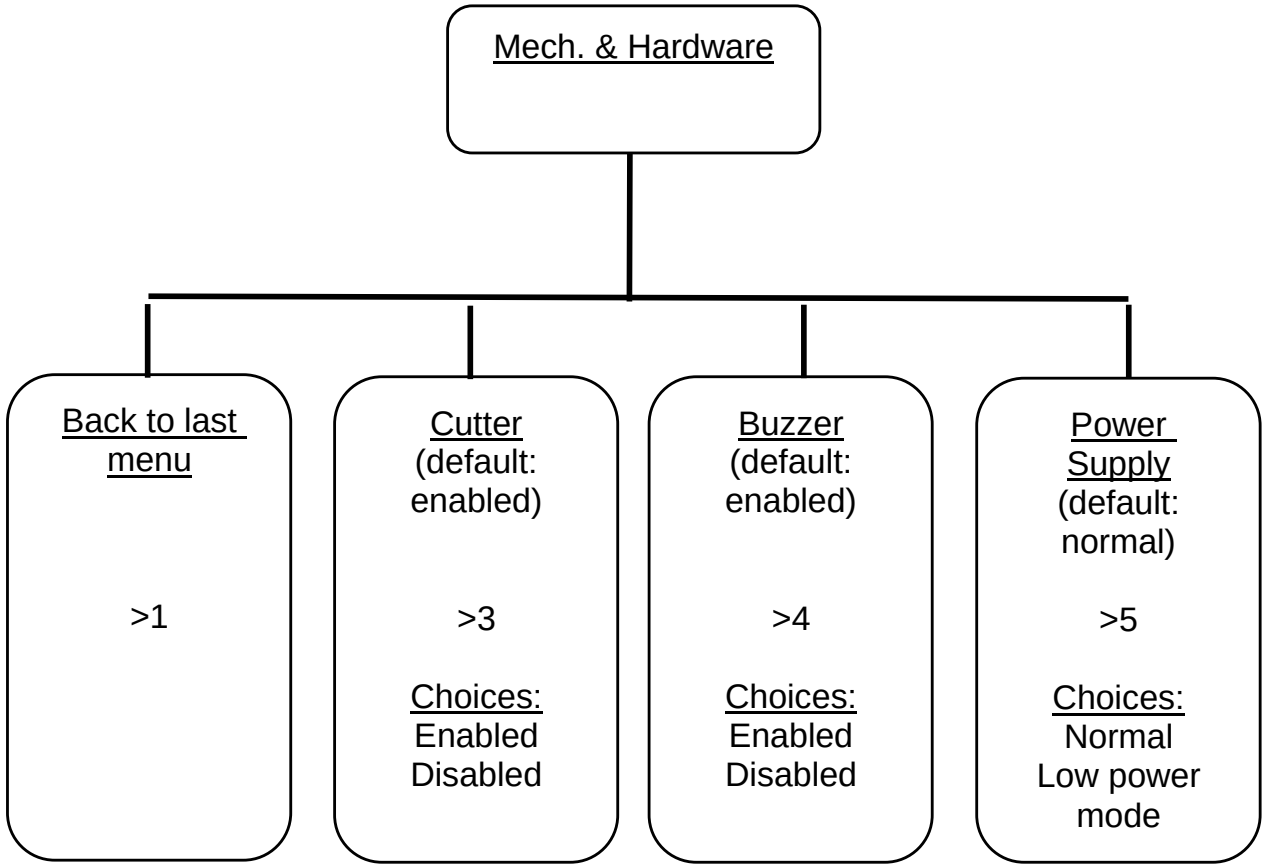
- **Setting configuration of the printer**



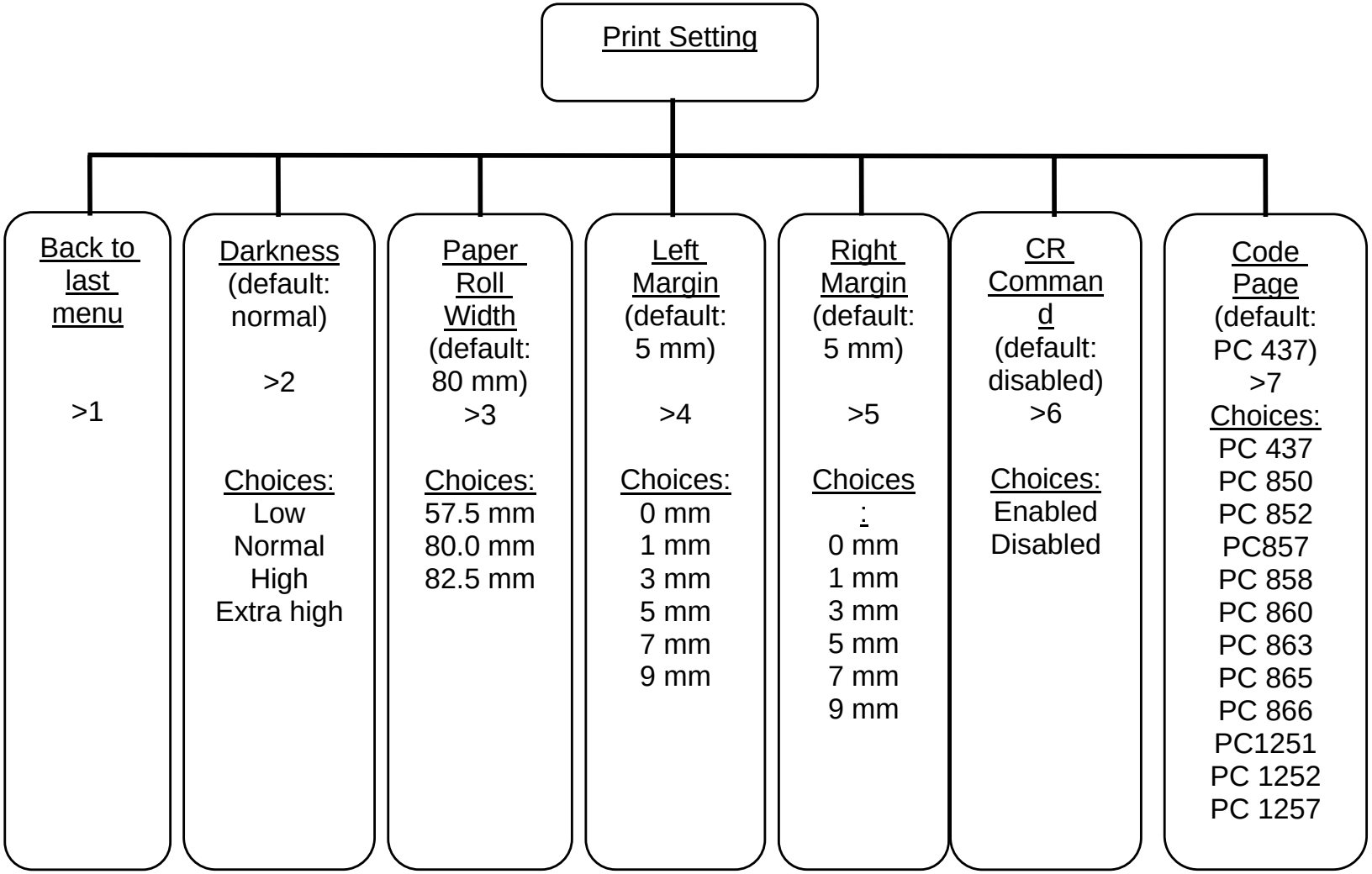
➢ Configuration of the serial interface



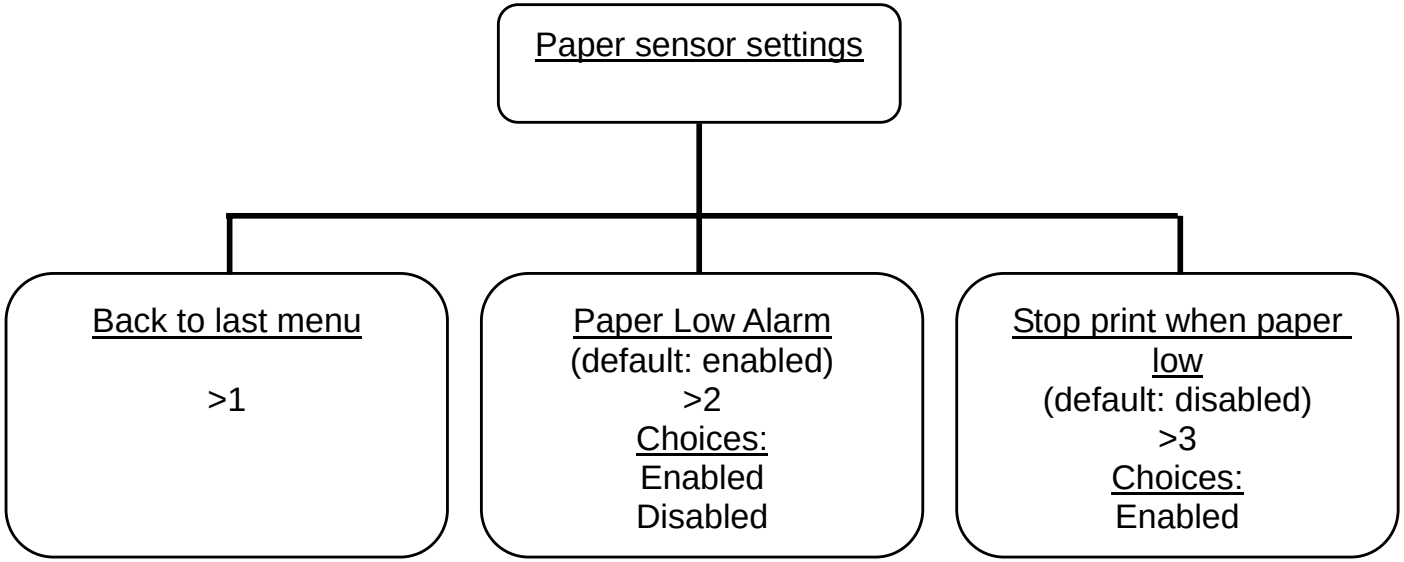
➢ Setting Mechanism and Hardware



➢ Print Setting



- **Paper Near-end Sensor setting**



Note: Paper Near-end Sensor setting is not a default setting, and thus not emerged on the FEED button configuration menu.

➢ Set Default Configuration